

REMARKS

Claims pending in the present patent application are numbered 35, 37, 38 and 40-43. Claims 35 is are amended herein. Claims 36, 39 and 44-55 are cancelled herein without prejudice. The title is amended herein. No new matter has been introduced as a result of the amendments in this response. The rejections set forth in the Office Action dated September 22nd, 2005, have been carefully considered by the Applicants. Applicants respectfully assert that the pending Claims are in condition for allowance.

RESPONSES TO CLAIM REJECTIONS

103 Rejections

Claims 35, 38, 44, 50 and 52-55 are rejected under 35 U.S.C. 103(a) as being unpatentable over Mui et al. (U.S. Patent No. 6,037,265; hereinafter "Mui") in view of Applicant's Admitted Prior Art (AAPA). Claims 44, 50 and 52-55 are cancelled herein. The rejection of Claims 35 and 38 is respectfully traversed as follows.

Claim 35 recites using decoupled plasma etch technology to etch "a portion of said conductive layer and a portion of said conductive adhesive layer" with an etchant comprising **chlorine and oxygen**, wherein said etching is conducted at a pressure of between **2 mTorr and 4 mTorr**, wherein a selectivity of said etching obviates a need for an adhesive layer of greater than 100 angstrom thickness, and wherein said process yields a semiconductor structure comprising a **lower electrical resistance** and a shorter vertical profile than a semiconductor structure comprising a conductive adhesive layer of greater than 100 angstrom thickness.

The thickness of the polysilicon layer in Mui is a result effective variable, as the Examiner asserts. However, the polysilicon layer **16** taught by Mui functions as an adhesive between the conductive layer and the substrate (or intermediate layer) as well as a sacrificial layer to protect the substrate (or intermediate layer) during standard fabrication steps. As can be appreciated by one of average skill in the art, Mui teaches that the thickness of the polysilicon layer **16** ranges from 300-8000 Å, more preferably 500-6000 Å, and **most preferably**, 1000-3000 Å (col. 6, lines 1-13) because the polysilicon layer **16** must be thick enough to function as a sacrificial layer, yet thin enough to promote conductivity.

The conductive adhesive layer recited in Claim 35 is not a sacrificial layer. The unexpected result of the combination of oxygen with chlorine as an etchant as well as the reduced pressure of 2-4 mTorr is a highly selective etch that obviates the need for the sacrificial aspect of the polysilicon layer. The polysilicon layer recited in Claim 35 does not function as a sacrificial layer, as the polysilicon layer taught by Mui does.

Applicants respectfully assert it is the hindsight afforded by the present claims that permits the Examiner to glean the present invention recited in the claims from Mui. It would not be obvious, upon review of Mui, without the benefit of the present invention, for one of ordinary skill in the art to produce a semiconductor structure according to the process recited in Claim 35. In view of Mui, there would have been no expectation of success of combining oxygen with chlorine to etch the conductive layer and the conductive adhesive layer. Mui very clearly discourages the addition of oxygen to the etchant chemistry (col. 1, lines 42-48, col. 17, lines 6-17 and col. 18 lines 48-58).

Furthermore, there is no motivation in Mui to reduce the pressure during the etch process to 2-4 mTorr while using oxygen with chlorine, as recited in Claim 35. While Mui does indicate generally that pressures of 0.5 to 50 mTorr can be realized (e.g. col. 2, lines 10-18), Mui fails to teach or suggest utilizing pressures of 2-4 mTorr while oxygen and chlorine are being combined as etchants (col. 16, lines 25-38 and col. 17, line 62 – col. 18, line 25). There is no suggestion in Mui that reducing the pressure to 2-4 mTorr while combining oxygen with chlorine to etch the conductive layer and the conductive adhesive layer would permit one to reduce the thickness of the polysilicon layer to less than 100 Å, as recited in Claim 35.

Applicants' admitted Prior Art fails to suggest or provide motivation for reducing the thickness of the polysilicon layer, for reducing the pressure to 2-4 mTorr, and for using an etchant combination of oxygen and chlorine, as recited in Claim 35. Therefore, AAPA fails to remedy the deficiencies of Mui. Applicants respectfully assert that Claim 35 is patentable over Mui in view of AAPA, and that Claim 35 is in condition for allowance.

Claim 38 is dependent on Claim 35 and recites an additional limitation. As Claim 35 is believed to be allowable for the reasons discussed above, Applicants assert that Claim 38 is also in condition for allowance.

Claims 36, 37, 39-43 and 45-49 are rejected under 35 U.S.C. 103(a) as being unpatentable over Mui in view of AAPA as applied to claims 35, 38, 44 and 50, and further in view of Examiner's comments. Claims 36, 39 and 45-49 are cancelled herein. Claims 37 and 40-43 depend on Claim 35 and recite additional limitations. Claim 35 is believed to be allowable for the reasons discussed above.

Therefore, Applicants assert that the rejection of Claims 37 and 40-43 is traversed and that Claims 36, 37 and 40-43 are in condition for allowance.

CONCLUSION

In light of the response presented herein, Applicants respectfully assert that Claims 35, 37, 38 and 40-43 overcome the rejections of record, and therefore earnestly solicit allowance of these claims.

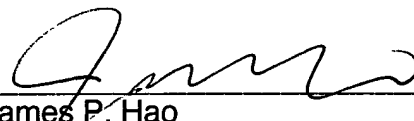
The Examiner is invited to contact Applicant's undersigned representative if the Examiner believes such action would expedite resolution of the present Application.

Respectfully submitted,

Wagner, Murabito & Hao LLP

Date: _____

12/13/05



James P. Hao
Reg. No.: 36,398
Two North Market Street
Third Floor
San Jose, California 95113